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ABSTRACT

This paper addresses the involvement of students with severe communication disorders in school curricula. First, current best practices regarding eligibility for augmentative and alternative communication (AAC) services are addressed. This is followed by a discussion of whether students who use AAC systems should be educated in regular or special classrooms and the types of curricula that should be used with them. Finally, delivery issues and strategies for enhancing student involvement in regular curricula are detailed. Eight major recommendations are made which address the following areas: (1) eligibility of all students with severe communication disorders for AAC intervention; (2) full integration in the regular classroom as a constant goal; (3) use of the regular education curriculum for goal setting and longitudinal planning; (4) individualization of communication goals based on functional assessment; (5) systematic efforts to increase opportunities for the child to interact with nondisabled people; (6) provision of communication instruction by a variety of personnel in classroom and community settings; (7) determination of communication goals by consensus of parents, student, and professionals; and (8) development of innovative and individualized interventions when students fail to participate in and benefit from the regular curriculum. (Includes lists of 36 references and 56 additional resources.) (Author/DB)

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Enhancing Curricular Designs

by

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This paper addresses a number of issues related to the involvement of students with severe communication disorders in school curricula.[1] *First, current best practices regarding eligibility for augmentative and alternative communication (AAC) services are addressed. This is followed by discussions concerning where students who use AAC systems should be educated and the types of curricula that should be used with them. Finally, service delivery issues and strategies for enhancing student involvement in curricula are detailed. Suggestions are provided throughout the paper regarding future research and practice needs.*

> Education is a specialized form of communication... Human beings have developed particular times and places in which the scripts of their cultures are to be communicated from one generation to the next. We have come to call the set of practices by which this communication of cultural scripts is accomplished "education." The communication that occurs in educational contexts happens in oral, written, verbal, and nonverbal modes... [Our] role is to facilitate the communication, thus the education, that occurs in the classroom. (Hoskins, 1990, p. 29)

Any discussion of the relationship between augmentative and alternative communication (AAC) services and school curricula must address a number of key issues. These include at least: (a) Who are the students for whom AAC services should be available in schools? (b) Where should these students be taught? (c) What type of curriculum should be used? (d) What are considered to be current "best practices" in the delivery of AAC services and curricula? and, finally, (e) How can curricular involvement be enhanced for students receiving AAC services? These questions will serve as the main topic headings for this paper.

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Who Should Receive AAC Services in Schools?

A review of the history of the AAC field reveals that a variety of decision-making trends has occurred regarding which students are appropriate candidates for AAC services. Initially, AAC assistance was provided primarily to those children who demonstrated chronic expressive communication disorders in the face of relatively strong cognitive and linguistic capabilities. For example, children and adolescents with severe speech disorders due to cerebral palsy were considered to be appropriate candidates for AAC services during this time, if they demonstrated relatively intact cognitive and language skills.

On the other hand, there was a tendency during the early years not to provide AAC systems to persons for whom speech remained a viable option. For example, children with developmental apraxia of speech or children with autism were often excluded from services, because of the hope that their phonologic abilities might eventually improve through maturation and/or direct instruction. There was the assumption (or fear) that if these children were given AAC systems, they might not exert the effort required to become natural speakers (see Silverman, 1989, for a summary of these concerns and of anecdotal studies that refute them). There was also a strong bias against providing AAC services to persons with cognitive limitations that were developmental in nature. Many of these individuals had severe expressive communication problems secondary to mental retardation, autism, congenital dual sensory impairments, or multiple handicaps; their cognitive and linguistic limitations were taken as evidence that they were not appropriate candidates for AAC services. For a period of time, this thinking was so predominant that the service delivery guidelines adopted by local educational agencies often required specific criteria related to cognitive or linguistic performance to be met (e.g., evidence of functioning commensurate with Piaget's sensorimotor stage 5 or beyond) before an individual was considered an appropriate AAC candidate (see Chapman & Miller, 1980; Owens & House, 1984; Shane & Bashir, 1980). Alternatively, many agencies adopted various "discrepancy formulae" to determine whether or not a sufficiently significant discrepancy existed between a student's language abilities and either chronological age or an index of general potential, such as mental age. These eligibility criteria and discrepancy formulae effectively excluded most individuals with severe and profound intellectual disabilities from receiving AAC services.

In 1989, a report issued by the Committee on Language Learning Disorders of the American Speech-Language-Hearing Association summarized the existing research evidence regarding the use of discrepancy formulae and other practices

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commonly used to determine eligibility for communication services in general. This report concluded that these practices "should not dictate whether or not... speech-language services are warranted" (p. 115) and stated that "eligibility decisions should be based on the individual needs of the child" (p. 118).

Still, these practices persist in many parts of the country, perpetuated in part by continuing endorsements (e.g., Love, 1992) which state that they constitute well-conceived protocols to facilitate decision-making. However, numerous authors in recent years have summarized the literature with regard to various criteria that have been used to determine AAC candidacy in the past and have concluded that there is no empirical evidence in support of these criteria (e.g., Kangas & Lloyd, 1988; Mirenda, Iacono, & Williams, 1990; Reichle & Karlan,1985; Romski & Sevcik, 1988). Thus, it is fair to say that the use of exclusionary criteria for the delivery of communication services is a practice that is outdated and indefensible, based on the available literature.

Given the practices described above, the following recommendation can be offered concerning who should receive AAC services:

Recommendation #1:

> All students with severe communication disorders that prevent them from meeting their daily communication needs through natural speech or writing techniques should be considered candidates who might benefit from AAC intervention. This includes students with physical, sensory, and/or intellectual disabilities, such as those with autism, dual sensory impairments, and severe/profound mental retardation.

Where Should Students Who Receive AAC Services Be Taught?

In response to both legal and social pressures, the educational environments that are considered to be appropriate for children with severe communication disorders have changed rather dramatically in the past 10 years. Increasingly, the "least restrictive environment" for these students has come to mean the regular classroom setting, for at least a substantial portion of each school day. In addition, for students who have difficulty generalizing new skills across environments or activities, various community environments may be appropriate settings for instruction (Calculator, 1988; Calculator & Jorgensen, 1991). Since participation in regular classroom and community settings requires extensive communication of many kinds, effective AAC systems that are age- and context-appropriate are critical tools for school success. This applies to students across the ability range, regardless of the severity of their communication disorders.

Beukelman and Mirenda (1992) identified two levels of regular classroom inte-

gration that can be considered for students with AAC needs. The term *integration* is used in this context to refer to the physical presence of a student in a regular classroom attended by similar-aged peers. In some cases, physical integration is all that is needed for social and curricular advantages to accrue; however, in most cases, the mere physical presence of students with AAC needs in regular classrooms is quite insufficient to ensure classroom participation. Thus, integration as defined by Beukelman and Mirenda (1992) is necessary but not sufficient for regular classroom participation.

Calculator and Jorgensen (1992) have delineated various obstacles and possible strategies for resolving common problems that can arise when school personnel attempt to include students with severe disabilities in regular classrooms. Their technical assistance model offers suggestions for teacher training, changes in service delivery, and so forth. Some students are *fully integrated* into regular classroom settings. This means that they are physically present in the same classroom(s) attended by their same-age peers during the entire school day. Thus, they, their classmates, and the regular class teacher all consider them to be "part of the class." *Selective integration* into regular classrooms is another option that may be appropriate in some situations, depending on a student's individual academic or social needs. For example, we know of high school students with severe disabilities who choose to spend one or two periods of their school day receiving remedial literacy instruction in a resource room setting, rather than attending study hall, music, art, or other "regular" elective classes. Alternatively, many students with severe intellectual disabilities spend considerable amounts of school time in community settings in which they receive vocational, recreation/leisure, or other instruction appropriate to their long-term needs. During the remainder of the school day, these selectively integrated students participate at various levels in the regular school curriculum. Finally, another option for selectively integrated students is to spend some time engaged in physical therapy or other types of specific skill training outside of the regular classroom for a small portion of the school day. Thus:

Recommendation #2:

> The point of departure of all discussions related to educational placement of students with severe disabilities should be a regular classroom within the student's neighborhood school. Full integration in the regular classroom should be the goal, unless specific educational priorities make selective integration an appropriate alternative. Related services (e.g., speech-language therapy, physical therapy, occupational therapy, therapeutic recreation, and so forth) should be conceptualized as supports for students in these settings and, thus, should be integrated within classrooms to the greatest extent possible (Calculator & Jorgensen, 1992).

What Type of Curriculum Should Be Used?

One of the primary reasons for including students with severe communication disorders in regular classrooms is to make available to them the educational and social benefits of involvement in the school curriculum. In its broadest application, the curriculum encompasses expectations of students at a given grade level. As such, it not only refers to academic goals but also to classroom demeanor, compliance with both overt and covert social rules that exist in various settings around the school, selection of textbooks and other instructional materials, teaching techniques, world knowledge, and so forth.

In this paper, the term *curriculum* is used to refer to the "subjects, specific subject matter, and the processes that are both planned and used to implement instruction of the content" (Choate, Enright, Miller, Poteet, & Rakes, 1992, p. 23). Generally, school curricula are codified in curriculum guides developed by state or regional departments of education or by local school systems. These guides usually contain statements of philosophy, objectives for each grade level, the scope and sequence of concepts to be taught annually in each subject area, and suggestions for instruction. In general, curriculum guides are used by teachers to ensure that the skills and concepts they teach build upon those taught in previous grades. In addition, curriculum guides are meant to ensure that, by the time students graduate, they will have learned the skills deemed necessary for success in adulthood. Similarly, curricula for students with severe communication and other impairments are usually designed with the intention of preparing students to participate in a variety of integrated community environments upon graduation (York & Vandercook, 1991).

Several negative consequences are likely to accrue if students with severe communication disorders are not involved in some way in the curriculum of the school through inclusion in regular classrooms (Beukelman & Mirenda, 1992). First, when students "fall out of the curriculum," teachers (often, special educators) are required to develop personalized curricula to meet their needs. The content of these curricula is often delivered either in segregated settings (e.g., resource rooms or special education classrooms) or in regular classrooms during activities that are parallel to but not the same as those experienced by other students. Early failure to be involved in the regular curriculum often results in students receiving totally personalized curricula for the duration of their public school experiences. While this may not be problematic in theory, the reality is that a personalized curriculum often lacks continuity, because its content may depend on the preferences and philosophies of individual educational staff. Therefore, the curriculum may change dramatically with the arrival of each new teacher or speech-language pathologist. Furthermore, inadequate longitudinal management of a personalized curriculum over the years usually results in a splintered educational program that is replete with gaps, redundancies, and oversights. Goldstein (1986) referred to this as a

"patchwork quilt of learnings" (p. 221) in which students are exposed to instruction that is neither systematic nor cumulative from year to year. In contrast, the regular curriculum provides an overall program structure for educational staff, which, at a minimum, encourages an orderly scope and sequence of instruction.

Second, failure to be involved in the regular curriculum appears to reduce available peer pressure and support. When children with disabilities are in regular classroom environments, they are subject to this pressure as much as their nondisabled classmates and often respond with a desire to learn what their peers are learning. They are also encouraged to participate in activities in a manner similar to that of the other students, so that they don't "stand out" from their peers. On the other hand, when a student is involved in a personalized curriculum in which no other students participate, such opportunities for peer pressure and support may be compromised. When a child is "out of the curriculum," it is essential that teachers and classmates be aware of their expectations for this student in the context of everyday instruction. Encouragement should come from multiple sources so that teacher and classmate expectations match the student's abilities. In addition, when the goals of these students diverge from classmates, they should be perceived as different rather than deficient. Successes should be evaluated relative to individualized expectations, rather than classroom norms.

Third, failure to be involved in a regular curriculum diminishes opportunities for peer interaction and instruction. Even if a student with disabilities is physically located in a regular classroom, the number of opportunities for social and academic involvement with other students may be reduced if he or she is continuously involved in a personalized curriculum. In addition, opportunities for peer instruction in either direction (i.e., disabled tutor-regular peer or regular tutor-disabled peer) are virtually eliminated.

Fourth, lack of participation in the regular curriculum may shape students' negative perceptions of themselves, in addition to those of their classmates, teachers, and/or family members. On the other hand, when students are involved successfully in regular classroom curricular experiences, they begin to see themselves as able and active in the same arena as their nondisabled peers. For example, Olivia is a teenager with multiple disabilities who was labelled profoundly disabled and placed in an educational program for other students with similar labels until this past school year. She rarely interacted with others, slept during most of the school day, and had no consistent communication signals except crying to indicate distress. During the past year, she has been included in a number of regular classes with her nondisabled high school peers. She now stays alert and awake during the majority of the school day, frequently smiles and vocalizes to greet her friends, uses a microswitch to operate kitchen and sewing appliances during home economics class, and enjoys participating in various sensory and movement activities during music, pottery, and physical education classes. As her interactions with her peers have increased in

]both quality and quantity, Olivia's level of alertness, nonsymbolic communication abilities, and enjoyment of daily activities have also changed dramatically.

Thus, in regards to the type of curriculum that should be used:

Recommendation #3:

> The regular education curriculum should serve as the basis for educational goal-setting and longitudinal planning for all students.

What Are Current "Best Practices" For Delivery Of AAC Services And Curricula?

The shift from a "special curriculum for each student" model to an "inclusive curriculum for all students" model necessitates, among other things, a reconceptualization of professional roles and practices related to communication. As Stainback, Stainback, Courtnage, and Jaben (1985) note:

> In order to foster change in regular education, [professionals] need to reduce their current emphasis on classifying, labeling, and offering "special" programs for students who do not fit within the present regular education structure. Instead, they should put more emphasis on joining with regular educators to work for a reorganization of or modifications in the structure of regular education itself so that the needs of a wider range of students can be met within the mainstream of regular education. (p. 148)

As a first step in guiding this reconceptualization, Calculator (1991) assembled a preliminary list of 22 practices, 14 of which were felt to reflect best practices and 8 of which were intended to contradict best practices. Items were based on a comprehensive review of the empirical and values-based literature. Each practice was then rated by an expert panel of 28 judges. Thirteen judges were members of the Related Services Subcommittee of The Association for Persons with Severe Handicaps (TASH), and 15 judges were members of the editorial board of the *Augmentative and Alternative Communication* (AAC) journal. Respondents rated the extent to which they felt each item reflected best practices in providing AAC instruction to elementary school-aged children with severe disabilities who are in regular classrooms. A Likert-type scale, ranging from 1 (strongly agree) to 5 (strongly disagree), with an additional "don't know" category, was used by the raters. It was determined a priori that items receiving scores in the 1.00-2.49 range (by each group of raters, as well as the mean of the two groups' ratings) would be validated as best prac-

tices, whereas those receiving scores between 3.51-5.00 would suggest violations of best practices. Results indicated that all 14 preconceived best practices were evaluated as such by the raters. The actual means of the two groups' responses to these items ranged from 1.00 to 1.57. Of the 8 principles conceived to violate best practices, 4 were evaluated as such (by individual groups, as well as in the overall mean of the two groups' ratings). Actual means of the two groups' responses to these items ranged from 4.08-4.57.

In the sections that follow, the 18 practices that were and were not deemed consistent with best practices are discussed. The remaining four statements, which were rated in the neutral range, are not addressed further.

Assessment and Evaluation

Communication assessment involves those processes by which information is gathered and analyzed so that persons who use AAC systems and those who assist them can make informed decisions about what and how to teach throughout the intervention process. Once the intervention has been implemented, some type of evaluation process can be used to measure: (a) the extent to which specific communication goals have been met, and (b) the extent to which newly acquired skills enhance students' inclusion in classrooms and other settings. Here, it is critical to remember that a primary purpose of communication instruction is to enhance students' interaction skills in educational and educationally-related settings. Evidence of changes in communication skills that have no impact on everyday performance may be of questionable significance.

Basically, there are two types of assessment and evaluation processes that can be used in this regard. One involves the use of formal or standardized measures to determine both goals and progress, while the other involves the use of informal or naturalistic measures for assessment and evaluation. In Calculator's (1991) survey, respondents strongly *disagreed* with the following statements related to the use of formal assessment and evaluation measures:

> Communication objectives [should be] based primarily on the results of formal assessment (i.e., standardized tests of language). (Mean rating = 4.57)

> The child's progress in communication [should be] evaluated by comparing the results of formal, standardized testing administered at the end of the year to that obtained earlier in the year. (Mean rating = 4.40)

On the other hand, respondents strongly *agreed* with a statement that referred to the functional nature of assessment:

> Communication goals [should be] individualized for each particular child, based on an assessment of each child's abilities to meet daily communication demands. (Mean rating = 1.16)

In terms of the "best practices" for AAC assessment and evaluation, this last statement implies that several related components should be considered. First, determinations regarding the "daily communication demands" made of the child should be gathered through observations, interviews, environmental inventories, and other strategies. This might involve, for example, observing nondisabled peers as they interact in a variety of classroom or community settings, and recording what the communicative expectations are in those settings (see Beukelman & Mirenda, 1992; Calculator & Jorgensen, 1991; Halle, this volume; and Reichle, York, & Sigafoos, 1991). Second, decisions about how the child can best meet the communication demands of the classroom should be made on an individual basis. This means that there is no "best" AAC device, symbol set, access technique, or approach that is appropriate for all children; rather, a wide variety of options must be considered, depending on the unique characteristics and needs of the child. Finally, the goals of communication intervention should also be individualized to suit the demands made by the classroom and/or community-referenced curriculum. In the broadest sense, this means that the overall goal of an AAC intervention is to assist individuals with severe communication disorders to become communicatively competent today, in order to meet their current communication needs, and to prepare them to be communicatively competent tomorrow, in order to meet their future communication needs.

Thus, the following recommendation can be offered about assessment and evaluation practices:

Recommendation #4:

> Communication goals should be individualized for each particular child, based on a functional assessment of each child's abilities to meet the daily communication demands of home, school, and community settings.

Social Curricula and Instructional Practices

A number of "best practice" curricular and instructional components related to communication for social interaction were identified by the respondents to Calculator's (1991) survey. Respondents *agreed* that:

> Communication goals [should] emphasize enhancing students' abilities to interact with their nondisabled classmates. (Mean rating= 1.14)

> Parents [should be] offered assistance regarding methods of enhancing interactions with their child at home. (Mean rating = 1.23)

It appears from these statements that AAC "best practices" legitimately include interventions that are designed primarily to increase students' ability to interact and converse with their peers and family members. Inclusion of a primarily social component of communication programming acknowledges that school involves more than just academic learning and that all curricular and extracurricular activities occur within social contexts. The parents of regular students show evidence of their awareness of the dual purpose of school when they request that their child be assigned to the same classroom as a friend or to a specific teacher who encourages social development.

Beukelman and Mirenda (1992) identified three levels of social participation that can be considered when designing social curricula for students with AAC needs. One option is that students be *socially competitive*. This means that they are active participants in a social group of peers. They are involved in the activities of the group, at least to the extent that they make choices about whether or not to engage in activities, and they exert influence over group decisions. For example, a socially competitive student might initiate activities such as backyard camp-outs or birthday parties on occasion and, in turn, is invited by other group members to similar types of activities. Typically, the student who is competitive in this area plays, visits, "hangs out," or otherwise interacts with his or her classmates after school hours (e.g., on weekends or in the evening).

Not all regular students or students with disabilities are socially competitive in all contexts. However, many are *socially active*, in that they make choices about and are involved in social activities, although they may not exert much influence over the social climate of a group and/or its interaction patterns. (Some readers will be able to apply this designation to themselves when they were children, because they were "shy" or "studious" students who were not socially isolated but did not have a wide circle of friends.) Often, socially active students spend more time alone after school hours than do their competitive counterparts, though they may have some opportunities for interaction with nondisabled peers. Students may be socially active in some areas and either competitive or involved in others.

Another option that may be considered for some students is *social involvement*. Socially involved students attend class with their regular peers and may be involved in some extracurricular activities as well. However, they do not influence social situations and often are involved in social activities as passive observers. Rarely do students who are socially involved in school maintain contact with their peers after school hours. They may spend their evenings and weekends engaged in activities primarily with family members rather than friends.

In addition to these options, some students, particularly those who have limited access to their nondisabled peers during school hours, have no social involvement and no opportunities to form friendships or make acquaintances. In terms of "best practices," this was considered to be problematic by Calcula-

tor's (1991) respondents, as reflected in their *endorsement* of the following statement:

> The communication program [should] include specific procedures by which teachers and others can increase the number of opportunities the child has to interact with nondisabled people. (Mean rating = 1.11)

Calculator and Jorgensen (1992) discuss methods of engineering classroom environments to promote friendships among students. They describe the Circle of Friends approach (Forest & Lusthaus, 1989) by which existing relationships among students can be delineated, and they present a rationale for incorporating the development of relationships into the curricula of these students. A number of other approaches have also been used to facilitate friendships between persons with severe disabilities and their peers, including Personal Futures Planning (Mount, 1987; Mount & Zwernik, 1988) and the McGill Action Planning System (MAPS) (Vandercook, York, & Forest, 1989). All of these models are based on the principle that collaborative efforts by family members, friends, and service providers are necessary if meaningful social relationships are to be available to individuals with disabilities (O'Brien & Lyle, 1987). In addition, the use of students as collaborators in the delivery of both social and academic curricula in regular classrooms is becoming increasingly acknowledged as a critical strategy for success (Villa & Thousand, 1992). For example, strategies such as "augmented language learning," in which communication partners incorporate AAC symbols and techniques into their ongoing social interactions with AAC users, can be readily taught to and used by nondisabled students in integrated settings (see Romski & Sevcik, 1992, 1993).

Thus, in regards to social curricula and instructional practices, the following recommendation can be made:

Recommendation #5:

The communication program should include specific procedures by which teachers and others can increase the number of opportunities the child has to interact with nondisabled people. Communication goals should emphasize enhancing the student's ability to interact with his or her nondisabled classmates. In addition, parents should be offered assistance regarding methods of enhancing interactions with their child at home.

Academic Curricula and Instructional Practices

In the past, communication services were delivered primarily by speech-language pathologists in separate instructional sessions conducted in special "speech therapy" rooms on a scheduled basis. Today, "best practice" requires that such services be delivered primarily in natural contexts, such as regular classroom and community settings, by a variety of professionals who have been taught (perhaps by the speech-language pathologist) how to best support communication throughout the day. This philosophy was reflected by the *negative* response of Calculator's (1991) respondents to the following two statements:

> The weekly schedule [should] include units of time to work on communication (e.g., three units per week for a total of 1.5 hours of direct service). (Mean rating = 4.08)
>
> The majority of communication goals [should be] carried out directly by a speech-language pathologist. (Mean rating = 4.3).

In contrast, six of the "best practice" statements endorsed in Calculator's (1991) survey referred to the use of natural contexts and functional goals for communication interventions. The respondents *agreed* that:

> Communication instruction [should be] provided in the context of naturally occurring activities (e.g., art, music, reading, recess) and daily routines (e.g., toileting, moving from one activity to another) in the classroom and other community settings. (Mean rating = 1.00)
>
> Communication objectives [should be] addressed systematically throughout the day, by a variety of instructors, in conjunction with ongoing activities such as snack, reading, art, music, and science. (Mean rating = 1.12)
>
> Communication skills taught [should be] highly functional (i.e., the student's acquisition of the skill will permit participation in, and access to, events and activities which otherwise would require a partner's providing for him/her). (Mean rating = 1.11)
>
> Communication goals [should] often take the form of opportunities for the student to make choices or indicate preferences, in the context of everyday activities and routines. (Mean rating = 1.57)

> Teachers and other classroom staff [should be] taught specific strategies related to how to use natural routines and activities to promote their child's communication development. (Mean rating = 1.05)
>
> A primary purpose of adaptive equipment (e.g., communication boards, computers, electronic communication aids) [should be] to provide a means by which the child can more effectively participate and be included in school activities. (Mean rating = 1.36)

These statements apply to communication interventions across the age and ability range. For some students, functional communication goals might be related to the acquisition of age-appropriate curricular content (e.g., reading, math, etc.). Functional goals might also involve learning to operate a communication device efficiently or learning to make choices, express preferences, initiate interactions, and ask for assistance. These determinations must be made on an individual basis, and student and family preferences regarding educational priorities should be accommodated to the maximum extent possible.

Many of the planning models mentioned previously, such as the Personal Futures Planning and MAPS processes, can be used by the educational team to make decisions about students' academic participation. Beukelman and Mirenda (1992) defined three levels of academic participation in the regular curriculum which can be considered for students with severe communication disorders. The first of these, *academically competitive participation*, requires that a student with AAC needs meet the same academic standards that are expected of the regular peers. However, this does not necessarily mean that all of the activities completed by peers will be completed by the student with disabilities to the same degree. For example, students with AAC systems often cannot write as rapidly as their peers; therefore, the amount of "seat-work" they are expected to complete may be reduced, as long as the same academic standards are met. Or some students may choose to reduce their overall academic workloads in order to meet the requirements of classes in which they are competitive.

It is important to note that students may be competitive in one, several, or all areas of the curriculum. Thus, an elementary-aged child may be competitive in math, reading, music, and art, while meeting somewhat lower expectations in other areas. The exact balance of academic participation should be determined on an individual basis.

The expectation of competitive, academic participation requires that families, teachers, and speech-language pathologists coordinate their efforts so that the student can be maximally efficient. Sometimes, there is insufficient time to develop and monitor an adapted or remedial curriculum in which educational specialists introduce content or requirements that are different from those of the regular classroom. Instead, when competitive participation is expected, educational

specialists must, of necessity, act as consultants to regular classroom teachers, so that all school activities contribute to the overall educational goal. In short, the goal of competitive participation is to expect certain standards while modifying activities and workloads as appropriate, not to modify standards while expecting the same quantity of work as produced by peers.

Not all students with AAC systems can be academically competitive in all areas. However, many students can be *academically active*, in that they are capable of participating in and learning from the regular curriculum, although they cannot meet the same academic standards as their peers. Maintaining these students as active participants in regular classrooms allows them to experience many of the benefits of integration, such as exposure to a structured educational sequence, peer social contact, and peer support in instruction. Meanwhile, agreements among educational staff and parents regarding students' "active" status can reduce the pressures of competitive expectations and the negative experiences that may accumulate as a result.

As noted previously, many students with AAC systems will be competitive in some academic areas and active in others. Alternatively, some students may be active in all areas and competitive in none; yet, they are expected to participate in the curriculum at some level, to be involved with and learn at least part of the same academic content as other students, and to be evaluated according to their individual goals. It is not uncommon that, in certain areas such as math or reading, an active student may receive special supplementary instruction focused on the development of particular skills. In addition, depending on the academic expectations, the focus of the curriculum may shift for some active students from an academic to a community-referenced orientation as they progress through school.

Together with their educational teams and parents, some students may decide that participation in certain academic areas will be limited to *academic involvement*, rather than competitive or active participation. In this case, the student attends the regular class activities along with peer students but is less active as a participant. For example, some students who are unable to speak or sing may enjoy being involved in the school choir. Because of their disabilities, they are not expected to be competitive or active on a routine basis; yet, they like music, the music teacher is fun to be around, the social atmosphere of the choir is very positive, and the students can benefit in a number of ways from the experience.

It is important to emphasize that involvement should not be limited to "elective" areas such as music and art. In many cases, perhaps because of the social atmosphere of a classroom or a student's interest in a subject area, involvement is desirable even though academic participation is expected to be minimal. For example, we know of one selectively integrated junior high school student with autism who was involved in regular social studies, English, shop (e.g., woodworking), and health classes during one school year, in addition to receiving instruction in a

variety of community settings. Some of the regular classes were of special interest to him (e.g., woodworking and health), while others were offered because the teachers were known to be accepting of students with special needs, regardless of their level of participation. It is important to note, however, that in none of these classes was the student a passive observer with no involvement whatsoever.

Achieving academic involvement in regular classrooms for students who experience decreased levels of responsiveness or who require continuous nursing supervision because of ventilator dependency, seizures, or other medical conditions can be particularly challenging. Calculator and Jorgensen's (1991) article "Integrating AAC Instruction into Regular Education Settings" provides teams with a mechanism by which specific learning objectives for such students can be extracted from classroom activities. Opportunities for expanded participation can be identified, along with the types of support needed (staff, instruction modifications, and so forth). For example, the educational goals for Shameel, a first grader with profound disabilities and numerous medical and physical problems, included remaining awake and alert while his friends read him a story during language arts, increasing his ability to grasp and release the objects used for counting and sorting during math lessons, and decreasing his tactile sensitivity through involvement with various media (clay, finger paints, etc.) during art class. When his peers inadvertently blocked his ability to see an ongoing activity, Shameel learned to vocalize for attention and then shake his body to say "move out of my way."

As educators, we must be accountable to students, their families, and the public at large that we are providing educationally relevant instruction. Teachers should never find themselves wondering why a student is present in the classroom at a particular time of the day or why a student is involved in ways that may not contribute to positive learning outcomes. Students with disabilities, like their peers, require that expectations be made of them and that "dead time" -- time during which opportunities for learning are absent -- is held to a minimum.

Thus, in regards to academic curricula and instructional practices, the following recommendation can be made:

Recommendation #6:

Functional, systematic communication instruction should be provided by a variety of instructional and support staff in the context of regular curricular activities in classroom and other community settings. Communication devices and other adaptive equipment should be used as a means to achieve academic participation and communication goals, not as ends in themselves.

Professional Roles

The final area surveyed by Calculator (1991) referred to the roles of various professional members of the team involved with a student with severe communication disorders. These team members often include both regular and special educators, a speech-language pathologist, occupational and/or physical therapists, and classroom aides. In addition, parents and the student in question should always be included on the team.

As noted previously, current "best practices" do not entail the delivery of communication instruction solely by speech-language pathologists. Rather, a coordinated team approach is deemed more acceptable, as reflected in respondents' *agreement* with these "best practice" statements:

> Staff [should] have a clear understanding of their respective roles in promoting the child's communication development. (Mean rating = 1.29)
>
> Possible communication objectives [should be] identified by a variety of team members (e.g., speech-language pathologists, parents, teachers, and classroom aides). (Mean rating = 1.15)
>
> The speech-language pathologist [should] provide others (e.g., parents, teachers, classroom aides, classmates) with information regarding how to modify their style of communication in order to enhance the likelihood that the child will understand them (e.g., simpler and more redundant messages; the use of augmentative modes of communication such as gestures and pictures) in everyday interactions. (Mean rating = 1.47)
>
> The speech-language pathologist [should] assist the classroom teacher in integrating communication instruction into his/her daily lessons. (Mean rating= 1.23)

Implicit in these statements is the notion that students with severe communication disorders who participate in regular curricula -- be they competitive, active, or involved participants -- will often require some level of assistance in order to meet the communication demands of the classroom. Beukelman and Mirenda (1992) defined three levels of independence that might be considered in this regard. Some students may be *fully independent* in at least some activities, so that they are able to participate without any human assistance at all. However, many students who use AAC systems or devices may be *independent with set-up assistance* to organize their work environments, turn on or move adaptive equipment, or change their positions in the classroom. After these set-up activities are completed, they can then be independent. Finally, some students will need to be *fully assisted* in order to participate in regular classrooms. It is

important to note that the teacher is not the only available source of such assistance; indeed, perhaps the primary (and most underutilized) source is the regular classroom peer group. It is important to emphasize again that neither full independence, nor academic competitiveness, nor social competitiveness are appropriate "prerequisites" to regular classroom integration for students with severe communication disorders.

Thus, in regards to professional roles:

Recommendation #7:

> Communication goals should be identified by consensus of the entire team (parents, student, and professionals). The speech-language pathologist and other special education staff should assist the regular classroom teacher and the student in achieving the desired level of participation and independence in the classroom.

How Can Curricular Involvement Be Enhanced?

In order to enhance the involvement of students with severe communication disorders in the curriculum of the school, the professionals involved in planning and executing their educational programs may need to institute adaptive strategies in a number of areas (see, for example, Dutton & Dutton, 1990; Falvey, Coots, Bishop, & Grenot-Scheyer, 1989; and Stainback & Stainback, 1992). These include strategies designed to adapt the classroom environment, assist students to be active learners, and help students manage the academic workload. These will be discussed briefly in the sections that follow.

Adapting the Classroom Environment

In some instances, adjustments to the physical environment may be necessary to enhance a student's curricular involvement within a classroom. For example, it is not uncommon for students in wheelchairs to be positioned off to the side or at the back of a room, because their chairs make it difficult for others to get around them. However, creating wider aisles between student desks and other classroom furnishings is a preferable strategy for solving this problem, since it allows the AAC user to stay with the group instead of remaining on the periphery. Widened doors that are adapted with special "open" buttons or "electric eyes" allow for easy entrance into the classroom and throughout other areas of the building, such as the music room, gymnasium, and cafeteria. Students' working surfaces should be positioned at appropriate heights for comfort and efficiency; this can be done through the use of adjustable desks and tables. Cut-out desktops may also be necessary so that there is a suitable distance between students and their working surfaces. Chalkboards located at lower levels than usual and extended slightly outward from walls allow students in wheelchairs to position

themselves appropriately for writing activities. Other items, such as doorknobs, pencil sharpeners, coat racks, and light switches can also be lowered to accessible heights. Finally, classroom assignments should be made after considerations of the accessibility needs of students, since, in most schools, some regular classrooms may be more accessible than others.

Assisting Students to be Active Learners

Because the communication content in regular classrooms changes so rapidly, it is often difficult to keep the vocabulary in the student's AAC system current. Because of this, there is a tendency to provide students with communication systems that are solely designed to address wants/needs and social interaction functions. However, the language of the classroom is not the same as the language of home or social settings. Children talk in school primarily with relatively unfamiliar adults in order to build a theory of reality, share their understanding of actions and situations, and acquire knowledge (Westby, 1985). While few investigations have documented in detail the vocabulary use patterns of children or adults at home and in school, one exception is the work of Marvin, Beukelman, and Vanderhoof (1991). These authors recorded the vocabulary spoken by five preschool-aged nondisabled children in these two settings. They reported that approximately one-third of the words produced by these children were spoken only at school, one-third were spoken only at home, and one-third were spoken both at home and school.

One would also expect that differences across specific school environments might also have dramatic effects on the words communicated in classrooms. For example, the content of elementary and secondary school curricula in various subject areas requires access to vocabulary items that may change as often as daily or weekly, in some cases. As the topic in a student's science unit shifts from plants, to planets, to prehistoric animals, and to rocks, the extent to which the student can communicate successfully in the classroom will largely depend on the availability of appropriate vocabulary. The vocabulary set designed to support a student's conversational interactions, which are relatively stable and predictable in most cases, is unlikely to be useful in meeting such frequently changing curricular communication needs. When the vocabulary provided for classroom participation is inadequate, students who use AAC systems are often forced to rely on other strategies to avail them of alternate means of participation (e.g., 20 questions, cloze procedures, etc.). Otherwise, they will be passive learners, unable to ask or answer questions in class, deliver topical reports, or otherwise participate in subject-oriented discussions, because they do not have the vocabularies to do so. Thus, it is critical that the professional team be quite aggressive in attempting to translate the curriculum into communication units that will allow the AAC user to participate in these classroom interactions. This is particularly critical during the early elementary years, before students are able to spell well enough to compose their own messages.

Assisting Students to Manage Time Constraints

Students with severe communication and/or motor impairments often find it difficult to maintain the pace of a regular education classroom, because they have difficulty manipulating educational materials such as books, worksheets, and so on. Unless adjustments are made in response to these difficulties, students may experience academic failure because they cannot complete their work, even though they have mastered the content. Several approaches are often used to accommodate the time constraints of students with disabilities.

Advance preparation. In many cases, it will be necessary to work with regular education staff in order to "preview" upcoming assignments, topic areas, and class projects, so that ample time is available to create related adaptations. For example, if the AAC support team knows that science units over the next two months will include "planets," "rocks," and "dinosaurs," they can begin to construct related communication miniboards or plan how to program the needed vocabulary words into an electronic AAC device. In addition, students can be encouraged to use strategies such as preparing questions in advance or composing answers to assigned questions overnight, in order to compensate for their reduced communication rates. For example, Jalisa, a student with multiple disabilities, was involved in a unit on "sex education" during a "teen living" class. Although she was not able to grasp much of the class material, she clearly understood at least some of the discussion related to "dating etiquette." She managed to convey to her special education teacher that she had some questions in this regard. Prior to class, the teacher recorded Jalisa's questions on a cassette tape, which Jalisa then activated in class, using a single switch. This technique was also used when Jalisa was assigned class reports in a cooperative learning group; she worked with her classmates after school to prepare the report, and they recorded it on tape. Jalisa was then responsible for playing the taped report the next day in class. Such advanced preparation strategies allow students with AAC systems to be active participants in the regular curriculum, without requiring teachers and peers to wait for lengthy periods of time while they compose messages or questions.

Using peer instruction. The incorporation of cooperative or peer instruction is becoming increasingly common in regular education (Gartner & Lipsky, 1990; Sapon-Shevin, 1990; Villa & Thousand, 1992). Applying these approaches to students who use AAC systems can be very effective in helping them to meet the time demands of the classroom. In addition, when students with disabilities are included in small cooperative learning or informal peer instructional groups, they are often able to participate more effectively than they can in large classroom situations. In junior and senior high school, students can also be enlisted to take in-class notes for academically competitive students with disabilities. This can be managed by having their regular notes photocopied or by having them use carbon paper between the pages of their

notebooks so that two copies are made automatically.

Adapting academic testing. It is usually difficult for competitive or active students with disabilities to complete academic tests in the same amount of time as their nondisabled peers. If adjustments in time constraints are not made, these students either end up being penalized for their disabilities or relying on the assistance of a classroom aide to complete tests in the time allotted. The former scenario is clearly unacceptable; the latter often leaves the teacher wondering who is really taking the test, the student or the classroom aide.

One solution to this dilemma is to provide an adapted environment in which students can take tests under close supervision. For example, some schools allow students to take tests in the counseling office or in a resource room setting. All test-taking in these settings is monitored to confirm that students have completed their own work. However, the time requirements are removed; all tests then become instruments for evaluating competence rather than speed.

Reduced workloads. As we discussed in a previous section, even when students are expected to participate at a competitive level (i.e., when they are held to the same standards as their nondisabled peers), this does not necessarily mean that they must complete the same amount of work. If a teacher is willing to allow a student to discontinue an assignment once he or she has demonstrated mastery of a concept or a process, precious time can be saved. In many cases, not to allow this to occur can be frustrating for all involved. For example, it is not uncommon to hear parents report how upsetting it is to watch their child work long hours to complete several pages of math problems, when it is clear that he or she understands the concepts by the end of the first page. When considering the amount of work, we must never lose sight of the purpose of the activity itself. Michael, an academically competitive student in a kindergarten program, understood the task set forth by his teacher. He was to cut out a series of shapes and designs and then align them in a way that would confirm to the teacher his understanding of one-to-one correspondence. However, as his classmates completed the assignment and moved on to another task, he continued to struggle with a pair of scissors, unable to cut out the first shape. If the purpose of this task was to enhance Michael's eye-hand coordination, his use of scissors, and his ability to cut on a line, we might not be overly concerned with the outcome. However, since the intention was to reinforce a math concept, the fine motor requirements of the task could have been revised (e.g., the shapes might have been precut), so that Michael could concentrate on the relevant learning goals. Such adaptations, though apparently minor, can make a major difference in a student's ability to participate actively in the classroom.

Thus, in regards to enhancing the curricular involvement of students with severe disabilities:

Recommendation #8:

A student's failure to participate in and benefit from the regular curriculum should be seen as an indication that adaptations are needed, rather than as an indication that integration per se is inappropriate. Team members should work together to develop innovative and individualized solutions to enhance academic and social participation.

Conclusion

A paper such as this, which is explicitly intended to offer "best practice" guidelines in a specific area, can be deceptive in at least two ways. First, one might assume that, because a practice has been deemed desirable, it occurs in the majority of situations. Second, one might infer that the practices deemed to be "best" are those for which there exists a great deal of support from the research literature. In terms of the curricular issues discussed in this paper, both assumptions would be erroneous. In 1992, most students with severe communication disorders who use AAC systems are not placed in regular classrooms, are not integrated in regular curricula, and are not provided with opportunities for interactions with nondisabled peers. Sadly, it is not at all uncommon for these children to enter school without access to either the writing and drawing tools, the reading tools, or the conversational tools that are available to their fellow students. That is, although they cannot hold pencils or crayons, they may not have access to augmented writing systems. Although they cannot hold books, turn pages, or use their voices to practice phonics, they may not be given adapted reading equipment or computers. Finally, although they have difficulty answering questions in class and participating in social conversations with peers, they may not be provided with AAC systems for interaction. Thus, it is not at all surprising that many of these students fail to participate successfully in regular education classrooms, since they are at a distinct disadvantage in terms of both academic and social learning. Unfortunately, when participation failure occurs, these students are often viewed as being "non-academically oriented" and are then assigned to either segregated classrooms or to adapted curricula delivered in resource rooms or other separate settings. In time, they often find themselves increasingly isolated from the mainstream, "integrated" only during "non-academic" classes such as music, art, or physical education. Until quite recently, it was only under exceptional circumstances that any of these students were retained in regular classrooms and provided with the adaptive devices and supports necessary for them to be successful. Because of this, the research base investigating the impact of inclusionary education on students with severe communication disorders is in its infancy.

Given these realities, the "best practices" discussed in this paper are

intended not to reflect the present but, rather, to provide a vision for the future. As the movement for educational reform in the United States becomes ever stronger, it is critically important to understand that the "best practices" for students with severe communication disorders are no different from the "best practices" for all students. When students with severe communication disorders fail to be included in regular classes, their failure should be jointly shared by classmates, teachers, and others. Conversely, their successful inclusion in regular classrooms should be a triumph that is shared with and celebrated by those around them. Inclusion in regular schools and classrooms is possible, as is social and curricular participation at whatever level. Collaborative team relationships among professionals and family members should form the basis for excellence in education for all students in the 21st century.

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